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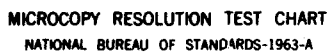
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We have carried out a research program in Bifurcation and Stability Theory  
with applications to Combustion and Flame Propagation, in which we determined  
both qualitative and quantitative behavior of solutions of these problems.  
In particular we obtained results on the transition from laminar to turbulent  
combustion. In our study we derived various simplified models from the  
general equations governing combustion, which were more amenable to mathe-  
matical analysis. The methods of bifurcation and stability were then  
employed on the resulting models.

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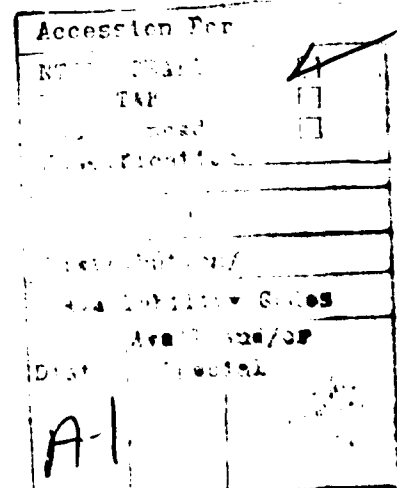
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→ Discussed is

~~We have carried out~~ a research program in Bifurcation and Stability Theory with applications to Combustion and Flame Propagation, <sup>2</sup> ~~in~~ which ~~we~~ determined both qualitative and quantitative behavior of solutions of these problems. ~~In particular we obtained~~ <sup>were obtained</sup> Results on the transition from laminar to turbulent combustion. ~~In our study we derived~~ <sup>were derived</sup> Various simplified models from the general equations governing combustion, which were more amenable to mathematical analysis. The methods of bifurcation and stability theory were then employed on the resulting models. A list of all the papers published, is appended. In addition a list of scientific personnel participating in the research program is appended. ←

# LIST OF SCIENTIFIC PERSONNEL

**Principal Investigator** - Prof. B. J. Matkowsky

**Associate Investigators** -- Prof. T. Erneux  
Prof. A. van Harten  
Prof. A. K. Kapila  
Prof. M. Matalon  
Prof. G. I. Sivashinsky

**Student** -- D. O. Olagunju -- received Ph.D.  
Thesis title -- "Bifurcation and Stability of Propagating  
Oscillatory Flames"

LIST OF PUBLICATIONS ON A.R.O. GRANT

"Singular Perturbations of Bifurcations," S.I.A.M. Journal on Applied Mathematics, Vol. 33, No. 2 (1977), pp. 230-255 (with E. L. Reiss).

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